

# PETITION

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Your Petitioner, Douglas M. Okuniewicz, citizen of the United States of America and resident of the State of Iowa, whose residence and mailing address is 2 Deer Trail, Council Bluffs, Iowa 51503, prays that Letters Patent Protection be granted to him for a

## **PRINTING AND DISPENSING BONUSING SYSTEM FOR GAMING DEVICES**

~~as set forth in the following specification:~~

### **Cross-Reference to Related Application**

This application is a Continuation-In-Part of patent application serial No. 08/994,075 filed December 19, 1997.

### **Background of the Invention**

#### **1. Technical Field**

This invention relates to a bonus dispensing system for gaming devices and, more particularly, to a programmable printing and dispensing bonusing system for electronic gaming devices including slot machines, video poker machines and other such electronic gaming devices which includes at least one detection device connected an electronic gaming device, an event detection sampling device in information transmission connection with the detection device operative to identify particular events, a programmable event occurrence information signal computing device connected to the event detection sampling device, the programmable event occurrence information signal computing device operative to output command signals therefrom and a printing/dispensing bonus device connected to said programmable event occurrence information signal

1 computing device operative to output bonus payout information and  
2 items resulting from particular combinations being produced by the  
3 electronic gaming device.

## 4 **2. Description of the Prior Art**

5 Slot machines and video poker machines continue to be the most  
6 widely used types of gaming devices found in the gaming industry.  
7 The oldest slot machines and video poker machines were relatively  
8 simple devices which included little in the way of sound generating  
9 devices, commonly including only a bell or buzzer to signify a  
10 winning combination on the reels. With the advent of new  
11 technology in the gaming industry, the slot machines and video  
12 poker machines were now able to produce a variety of pre-programmed  
13 sounds through the use of computer chip technology. These chips  
14 are most often constructed as integral parts of the gaming device  
15 and are programmed at the factory to produce a limited number of  
16 sounds in response to events such as a winning combination coming  
17 up on the reels. The sounds produced by the machine can be of high  
18 quality through the use of efficient loudspeaker systems.

19 In spite of the use of such new technology, one of the major  
20 disadvantages found in the prior art regarding the sounds produced  
21 by the slot machine has gone unaddressed. Specifically, because  
22 the chips are programmed by the factory, the sounds and payouts  
23 produced by the machine cannot be changed by the customer, i.e.,  
24 the casino. The sounds and payouts produced by the gaming device  
25 thus are always the same, absent game modifications, and the gaming  
26 public may lose interest in play of the machine due to the lack of  
27 any changes in the output of the machine when winning combinations  
28 are produced. It is important to understand that on most machines

1 the sound and payout information and the payout tables are  
2 programmed on the same chip. If a user of the gaming device wishes  
3 to modify the sounds or bonuses produced by the machine, the chip  
4 containing the sound bytes must be "reburned" or reprogrammed by  
5 the factory or the casino. The reprogramming of the chip, however,  
6 will mandate review and testing of the chip by an independent  
7 testing laboratory and/or by the state gaming commission to confirm  
8 that nothing on the chip was modified except for the sounds  
9 themselves. Obviously, if retesting of the chip each time the  
10 smallest change in sound or bonuses designated by the chip is  
11 necessary, no casino location will wish to go through the process  
12 due to the length of time and expense of development and testing  
13 involved. There is, therefore, a need for a device for inclusion  
14 in a gaming device which is capable of being quickly and easily  
15 reprogrammed to produce a different sound or bonus payout in  
16 response to a particular event occurrence, and which does not  
17 require retesting by an agent of the gaming commission each time a  
18 new sound or bonus is included.

19 It is thus seen that a disadvantage of the prior art is that  
20 the sound-producing devices found in gaming devices cannot be  
21 modified by the casino to produce alternative sounds. However, it  
22 is a further disadvantage of the prior art that the sound-  
23 generating devices on all but the newest machines are often  
24 technologically insufficient to produce such sounds as human speech  
25 and difficult-to-reproduce sounds. It therefore may be desirable  
26 to enhance the sound-producing capabilities of the gaming device by  
27 "adding on" a more sophisticated sound card. Due to restrictive  
28 gaming regulations, however, any such add-on sound card would have

1 to be incapable of influencing the outcome probabilities of the  
2 gaming device, thus requiring a type of detection means for  
3 detecting specific event occurrences on the electronic circuit  
4 board or the reels of the gaming device. At present, such read-  
5 only detection devices are not found in the prior art, as most, if  
6 not all, of the sound-producing devices found in the prior art are  
7 integrated into the gaming device and such read-only detection  
8 devices are not necessary. With the rapid improvement in sound  
9 cards, however, the need for non-intrusive read-only detection  
10 devices for use in combination with an add-on sound card has  
11 arisen. There is therefore a need for such a read-only detection  
12 device used in combination with an add-on sound card.

13 One of the most recent innovations in gaming is the multi-  
14 machine jackpot, such as Quartermania, Megabucks and Cool Millions.  
15 In these games, a bank of gaming machines are connected to one  
16 another in information transmission connection such that coin input  
17 at each of the machines adds to an overall jackpot which can be hit  
18 on the any of the machines in the group. These wide-area  
19 progressive games have acted to increase game play thus increasing  
20 the handle of the casino. The disadvantage to such wide-area  
21 progressive games is that the casino is again prevented from  
22 modifying the sound or bonusing output of the machine when a  
23 jackpot or other winning combination is achieved. The casino may  
24 desire to formulate its own location-specific games, such as  
25 treasure hunts or other such games, in which the treasure would be  
26 "found" by a specific reel combination turning up on the machine.  
27 Should such a reel combination come up on the machine, the player  
28 would be notified by casino-specific sounds emanating from the

1 machine. It also may be desirable to have "treasure hunts" between  
2 multiple casino locations having wide-area progressive games, but  
3 again the sounds emitted by the machine must be modified to reflect  
4 the new game play. Obviously, the sounds included in the machine  
5 from the factory are not designed with this type of option in mind,  
6 and it would be necessary for the casino to be able to interrupt  
7 the ordinary sound production of the gaming device and substitute  
8 its own desired sound output for particular event occurrences. It  
9 is believed that the variety offered by such sound variations will  
10 significantly increase "coin in" on the various machines due to the  
11 heightened interest in the modified games.

12 Another disadvantage found in those devices representative of  
13 the prior art is that when an update of sound produced is desired,  
14 the chip carrying the sounds must be reprogrammed or "reburned".  
15 As was stated previously, on many machines the audio files are  
16 stored on and played by the same chip that controls the payouts and  
17 pay tables for the machine. Therefore, each time the chip is  
18 reprogrammed to issue new sounds, the modified chip must be  
19 retested by an independent laboratory and/or the state authorities.  
20 Obviously, a casino organization which has invested millions of  
21 dollars in slot machines does not wish to lose the use of the slots  
22 for a period of time during testing each time the sounds produced  
23 by the machine are modified. There is therefore a need for an  
24 easily updatable and reprogrammable sound-producing device for use  
25 in slot machines and the like that will increase the usable life  
26 span of the slot machine and, more importantly, require only a  
27 single round of testing when initially added to the machine.

28 There are several examples of devices in machines proposed in

1 the prior art which attempt to increase the amount of "coin in" by  
2 increasing interest in the games. For example, Nishikawa, U.S.  
3 Patent No. 4,522,399, discloses a device for generating an impact  
4 sound for a slot machine, the device intentionally producing an  
5 impact sound when reels start to be rotated by motors. Clearly,  
6 however, this device cannot be modified in any meaningful way to  
7 produce a variety of sounds and thus its application to the gaming  
8 industry is limited.

9 It has also been found that there is a substantial interest in  
10 the development of a bonusing system for electronic gaming devices  
11 which outputs bonus items, the items either having intrinsic value  
12 or being representative of the bonus received and which are  
13 redeemable for the indicated bonus. As was stated previously, any  
14 such add-on electronic activity detector would have to be incapable  
15 of influencing the outcome probabilities of the gaming device, and  
16 thus a uni-directional detection device for detecting specific  
17 event occurrences on the electronic circuit board would be  
18 preferred. In a typical slot machine, there are numerous machine  
19 event occurrences which would need to be sampled in order to  
20 determine whether the particular event has occurred. These include  
21 such occurrences as a bill accepted into the machine, a jackpot  
22 being hit, coin in, coin out and other display data. Each of these  
23 machine inputs and outputs would need to be monitored to determine  
24 event occurrences, but must be monitored in such a way that the  
25 event occurrence cannot be tampered with in order to conform to  
26 applicable gaming regulations. Therefore, as was stated  
27 previously, there is a need for an electronic activity detector and  
28 command generator which is capable of detecting event occurrences

1 on the circuit board of a gaming device and then issue appropriate  
2 demands in response to those event occurrences which will cause  
3 connected output devices to perform designated tasks.

4 By way of clarification, the electronic activity detecting  
5 portion of the card is that portion of the card that will identify  
6 that an event is taking place within the machine (i.e. coin in,  
7 jackpot. etc...), and the command portion of the card is that  
8 portion which recognizes the event and dictates the proper  
9 response. Although it is expected that one of the major output  
10 functions of any card performing these functions would be that of  
11 sound reproduction, there is also a need for other types of  
12 outputs, including printer functions, lights and gaming  
13 information. It is important to note that there are no devices  
14 found in the prior art which can be connected to one or more output  
15 devices such as a sound card, a printer, a set of lights or a  
16 player's card information system. There is therefore a need for a  
17 device which can read and react to gaming machine outputs, and,  
18 depending on the programming of the device, output the appropriate  
19 command signals to output devices to drive the output devices to  
20 perform their respective functions without affecting the regulated  
21 components of the gaming device.

22 At the present time, bonuses on gaming devices are delivered  
23 through the standard payment mechanism of an individual machine.  
24 For example, if a specific reel combination is hit for 25 coins  
25 plus a spin of the bonus wheel, the wheel will spin and stop on a  
26 number or multiplier in an apparently random fashion (i.e. if it  
27 stops on 50 coins then a total of 75 coins were won). However, the  
28 total payment of 75 coins was predetermined at the time the reel

1 combination was hit, and therefore in cases like this the bonuses  
2 are not really "bonuses" but rather a split payment of the actual  
3 payout with one part of the split payment having the appearance of  
4 a bonus.

5 It has also been found that increased game play can result  
6 from the dispensing or paying of bonuses in connection with  
7 particular reel or display combinations on the electronic gaming  
8 device being hit. Such bonusing items could include plush toys,  
9 vouchers for meals, cash, lottery tickets, coupons, promotional  
10 materials, other prizes or almost any other type of prize award.  
11 At the present time, the prior art does not disclose the dispensing  
12 or printing of a bonus item from a secondary output device not  
13 directly associated with the standard payment device on the gaming  
14 device, most commonly a coin or scrip dispenser, the bonus being  
15 dispensed in connection with a predetermined event or series of  
16 events occurring on the gaming device, such as coin in or a  
17 particular combination being "hit" on the electronic gaming device.  
18 There is therefore a need for such a bonusing system which would  
19 both increase game play and decrease the dissatisfaction of the  
20 consumer, as a reel combination that is not ordinarily a payout  
21 combination may result in the obtaining of bonus prizes.

22 Therefore, an object of the present invention is to provide a  
23 printing and dispensing bonusing system for electronic gaming  
24 devices.

25 Another object of the present invention is to provide a  
26 printing and dispensing bonusing system for electronic gaming  
27 devices which includes at least one detection device adapted for  
28 connection to an electronic apparatus which is operative to detect



1 selected event occurrences on the electronic apparatus and output  
2 event occurrence notification signals upon detection of an event.

3 Another object of the present invention is to provide a  
4 printing and dispensing bonusing system for electronic gaming  
5 devices which includes an event detection sampling device in  
6 information transmission connection with the detection devices, the  
7 event detection sampling device operative to receive and detect the  
8 event occurrence notification signals from the detection devices,  
9 analyze the signals and output event occurrence information signals  
10 specifying the occurrence of a preselected event or events on the  
11 electronic apparatus circuit board.

12 Another object of the present invention is to provide a  
13 printing and dispensing bonusing system for electronic gaming  
14 devices which includes a programmable event occurrence information  
15 signal computing device in information transmission connection with  
16 the event detection sampling device, the computing device operative  
17 to receive and analyze event occurrence information signals output  
18 by the event detection sampling device and upon detection of event  
19 occurrence information signals, output command signals for  
20 initiating operation of a printing and dispensing device connected  
21 to the programmable event occurrence information signal computing  
22 device, the printing and dispensing device operative to dispense or  
23 print a bonus item or information from a secondary output device  
24 not directly associated with the standard coin or scrip dispenser,  
25 the bonus being dispensed in connection with at least one event  
26 occurring on the electronic gaming device.

27 Another object of the present invention is to provide a  
28 printing and dispensing bonusing system for electronic gaming

1 devices which may be quickly and easily reprogrammed to produce  
2 different outputs in response to the same reel combinations turning  
3 up on the machine.

4 Another object of the present invention is to provide a  
5 printing and dispensing bonusing system for electronic gaming  
6 devices, particularly a casino gaming device, which is capable of  
7 sampling event occurrences on the circuit board of the gaming  
8 device that is clearly incapable of influencing the outcome of any  
9 gaming event in the gaming device, thus permitting the electronic  
10 activity detector and command generator to be added to gaming  
11 machines while requiring only minimal inspection by a gaming  
12 commission or its agent. Future operational modifications will not  
13 require reinspection by the gaming commission or its agent.

14 Finally, another object of the present invention is to provide  
15 a printing and dispensing bonusing system for electronic gaming  
16 devices which is durable in construction and safe and efficient in  
17 use.  
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## 1 **Summary of the Invention**

2       The present invention provides a printing and dispensing  
3 bonusing system for electronic gaming devices, particularly a  
4 casino gaming device, which includes at least one detection device  
5 which is adapted for connection to an electronic apparatus, the  
6 detection device operative to detect selected event occurrences on  
7 an electronic apparatus and output event occurrence notification  
8 signals upon detection of an event. An event detection sampling  
9 device is connected in information transmission connection with the  
10 detection means, the event detection sampling device operative to  
11 detect and receive event occurrence notification signals from the  
12 detection devices, analyze the received event occurrence  
13 notification signals and output event occurrence information  
14 signals including information specifying event occurrences.  
15 Connected in information transmission connection with the event  
16 detection sampling device is an event occurrence information signal  
17 computing device which is operative to receive and analyze the  
18 event occurrence information signals output by the event detection  
19 sampling device and upon detection of selected event occurrence  
20 information signals, output command signals for initiating at least  
21 one connected output device to perform a selected operation  
22 corresponding to the outputted command signal. The output device  
23 is operative to accept command signals from the programmable event  
24 occurrence information signal computing device and output the  
25 appropriate response corresponding to the command signal.

26       The present invention also provides a printing and dispensing  
27 bonusing system for electronic gaming devices, particularly a  
28 casino gaming device, which includes at least one detection device

1 which is adapted for connection to an electronic apparatus or which  
2 is integral with the device, the detection device operative to  
3 detect selected event occurrences on an electronic apparatus and  
4 output event occurrence notification signals upon detection of an  
5 event. An event detection sampling device is connected in  
6 information transmission connection with the detection device, the  
7 event detection sampling device operative to detect and receive  
8 event occurrence notification signals from the detection devices,  
9 analyze the received event occurrence notification signals and  
10 output event occurrence information signals including information  
11 specifying preselected event occurrences. Connected in information  
12 transmission connection with the event detection sampling device is  
13 an event occurrence information signal computing device which is  
14 operative to receive and analyze the event occurrence information  
15 signals output by the event detection sampling device and upon  
16 detection of those event occurrence information signals, output  
17 command signals for initiating operation of a bonus printing and  
18 dispensing device connected to the programmable event occurrence  
19 information signal computing device operative to dispense or print  
20 a bonus item or bonus information from a secondary output device  
21 not associated with the standard coin or scrip dispenser, the bonus  
22 being dispensed in connection with at least one predetermined  
23 combination being "hit" on the electronic gaming device.

24 The advantages of the present invention over those devices  
25 found in the prior art are numerous and include the fact that the  
26 present invention may be added to any existing gaming device to  
27 produce alternative command outputs in response to event  
28 occurrences in the electronic apparatus, thereby engaging various

1 output devices. Furthermore, because the present invention is  
2 reprogrammable in a quick and easy manner, a variety of response  
3 schemes may be instituted over the life span of a gaming device,  
4 thus insuring that consumer interest in the game remains relatively  
5 high. Also, because the present invention is designed to sample  
6 events off of the electronic apparatus and cannot be used to modify  
7 the probabilities of gaming occurrences, it is believed that the  
8 present invention will be acceptable for use with slot machines and  
9 the like without requiring any more than minimal additional  
10 inspection and certification by the gaming commissions of the  
11 various jurisdictions or their agents. Because the computing  
12 device on the programmable electronic activity detector and command  
13 generator may be programmed to interrupt the normal sound and  
14 display output of the gaming device and substitute an alternative  
15 sound or display, exciting new varieties of games may be introduced  
16 even though the new game is being played on the old piece of gaming  
17 machinery. Also, one of the most exciting features of the present  
18 invention is that unique messages such as advertisements for casino  
19 activities and the like or interactive gaming experiences can be  
20 included in the programmable electronic activity detector and  
21 command generator, and the variety of messages is almost unlimited.

22 The present invention also combines the excitement of the  
23 traditional slot machine with an entirely new element of gaming,  
24 the printing or dispensing of bonus information or items through a  
25 secondary output device which is unrelated to the standard payment  
26 device. With the present invention, not only are winning reel  
27 combinations paid, but the player also will have the opportunity to  
28 win bonus prizes based on the occurrence of preselected events or

1 a series of events, such as reel combinations. Therefore, the  
2 present invention provides a substantial improvement over those  
3 devices found in the prior art.

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1 **Brief Description of the Drawings**

2 Figure 1 is a high level block diagram of the present  
3 invention showing the elements thereof;

4 Figures 2A-2E are detailed circuit diagrams of the input  
5 section of the electronic activity detector and command generator;  
6 and

7 Figures 3A-3E are detailed circuit diagrams of the event  
8 occurrence information signal computing device or main computing  
9 unit showing the inputs and outputs thereof.

## 1 **Description of the Preferred Embodiment**

2       The following description discloses two embodiments of the  
3 present invention. The first embodiment is a programmable  
4 electronic activity detector and command generator illustrated in  
5 Figures **1-3E**.

6       Figures **2A-2E** and **3A-3E** illustrate the programmable electronic  
7 activity detector and command generator **200** of the present  
8 invention. As shown in Figure **1**, the embodiment includes a machine  
9 interface **202** which consists of the connection of the programmable  
10 electronic activity detector and command generator **200** to the  
11 circuit board **300** of an electronic device. In this instance, as  
12 shown in Figures **2A-3E**, the electronic device would be a typical  
13 slot machine having display data output, machine input information  
14 and machine output information which may be either sampled on the  
15 circuit board itself as will be necessary with many retrofit  
16 situations, or the slot machine may include a wiring harness which  
17 allows for simple connection to each of the data output locations  
18 from the circuit board. In either event, the machine interface **202**  
19 will access the information sites on the circuit board and allow  
20 for the event occurrence data to be transferred to the programmable  
21 electronic activity detector and command generator **200**.

22       The machine interface **200** is connected, in the preferred  
23 embodiment, through a series of diodes and dip switches to the  
24 event detector devices **204a-o** which operate to read the machine  
25 outputs. The event detector devices may be of various types of  
26 detectors, including optical isolators or the like, so long as the  
27 primary function of unobtrusively determining event occurrences is  
28 fulfilled. Each of the event detector devices **204a-o** are



connected to one of the machine output lines **201a-o** and therefore when an event occurs on any of the machine output lines **201a-o**, the event detector device **204a-o** associated with that event will signify the occurrence of that event yet prevent any potential modification of the event status due to the one-way nature of the event detector devices. After the event detector device **204a-o** activates in response to event occurrence on the machine board, the event occurrence notification signal corresponding to that event occurrence is transmitted to the data capture segment **206** of the embodiment **200**. The data capture segment **206** consists of a plurality of input registers which receive the incoming event occurrence notification signal from the event detector devices **204a-o** and interfaces the signal from the machine interface **202** to the event occurrence information signal computing device or main computing unit **240**. The input registers **208b** and **208c** are each preferably connected to the machine inputs and machine outputs on the machine output line **201d-o** whereas input register **208a** is preferably connected to the display data coming from machine output lines **201a**, **201b** and **201c**. The display data is in serial format coming from the circuit board **300** of the slot machine and thus must be changed over to parallel to permit the main computing unit **240** to access the incoming display data. For this reason, each of the incoming display unit lines is converted from serial to parallel format by an appropriate converter, shown as converter units **210a**, **210b** and **210c**. The display data is then fed into input register **208a** before being forwarded onto the main computing unit **240**. Finally, input register **208d** is designed for use with eight-bit addressing systems for future possible uses.

1        It should be clear that an additional operational feature of  
2 the data capture portion **206** of the embodiment **200** of Figures **1-3E**  
3 is that the data capture portion **206** must be organized to permit  
4 the main computing unit **240** to sample the incoming data to  
5 determine event occurrences on the circuit board **300** of the slot  
6 machine.        This would commonly be done by clock pulse  
7 synchronization or multiplexing in which the main computing unit  
8 **240** is programmed to periodically "poll" each of the input  
9 registers **208a-d** to determine if an event has occurred.    Each of  
10 the input registers **208a-d** may be polled in turn to determine an  
11 event occurrence detected by the input registers **208a-d** thus  
12 permitting the connection of all of the input register outputs to  
13 be placed on a signal bus line **212** leading to the main computing  
14 unit **240**.    The polling operation will be made more clear in the  
15 discussion regarding the main computing unit **240**, but it should be  
16 generally understood that the input registers **208a-d** operate in a  
17 manner generally understood by those skilled in the art.

18        The input registers **208a-d** of the data capture portion **206** are  
19 connected in information transmission connection by bus **212** to the  
20 programmable event occurrence information signal computing device  
21 **240** which will be referred to herein as the MCU (main computing  
22 unit).    The MCU **240** is programmed to scan the input registers  
23 within the data capture portion **206** of the alternative embodiment  
24 and remove, identify and compare the event occurrence notification  
25 signals found within those registers to a decision table preloaded  
26 into the registers of the MCU **240** itself.    This decision table may  
27 take any accepted form so long as the MCU **240** is able to access the  
28 data, identify particular event occurrence information signals and

1 output command signals to connected output devices which command  
2 those output devices to perform certain functions based on  
3 particular machine events. For example, common machine events may  
4 include coin in, handle pull, jackpot, any other payoff combination  
5 or non-winning combination or the like.

6 The MCU **240** will preferably be an eight-bit CMOS  
7 microcontroller manufactured by Microchip Technology, Inc., part  
8 No. PIC16C6X. Of course, it is to be understood that numerous  
9 other types of microcontrollers may be used with the present  
10 invention provided those microcontrollers are programmable to  
11 perform the same or similar operations. Although the MCU **240** is  
12 shown as being wired into the system in one particular design in  
13 Figures **3A-3E**, it should be further understood that the exact  
14 layout and connection of the hardware elements described herein is  
15 not overly critical to the present invention so long as the  
16 embodiment **200** is able to function as intended. Furthermore,  
17 although the MCU **240** of the present invention is programmed using  
18 RISC code, it is to be understood that the exact object code to be  
19 used in the MCU **240** is not critical to the invention so long as the  
20 MCU **240** operates to perform all of its intended functions.

21 When the MCU **240** identifies that an event occurrence  
22 information signal received from one of the input registers **208a-d**  
23 corresponds to a table event within the register of the MCU **240**,  
24 the MCU **240**, due to its programming, determines that a command  
25 signal should be sent to a connected output device. As best seen  
26 in Figures **6**, the MCU **240** is programmed and hardwired to output  
27 command signals in two basic formats, one being a simple command  
28 pulse or device trigger for the triggering of an output device such

1 as a bell, whistle, or light, and the second being a serial  
2 interface for connection to more sophisticated output devices such  
3 as a sound card or a printer. The programmable electronic activity  
4 detector and command generator **200** of the present invention is  
5 designed to substitute alternative output device responses for  
6 particular event occurrences in the slot machine. Obviously,  
7 modification and/or replacement of all of the event occurrences  
8 produced by the machine is not necessary nor even advisable in many  
9 instances and therefore the MCU **240** is operative to replace or  
10 supplement only those events designated for replacement by the  
11 event table in the MCU and allow the remaining machine outputs to  
12 be produced normally by the slot machine.

13       When the MCU **240** detects that a designated event has occurred  
14 in the slot machine by a match of a selected event occurrence  
15 information signal and an event held within the table, the MCU **240**  
16 generates a command signal which is sent to connected output  
17 devices. Depending on the event occurrence in the slot machine,  
18 the command signal which is output by the MCU **240** will be a command  
19 pulse, which will be sent via the auxiliary triggers **242a** and **242b**  
20 which send a simple trigger pulse to connected output devices  
21 designed for activation by such command pulses, or will be a serial  
22 format command signal for commanding serial output devices such as  
23 an audio card, a printer or other such serial output device. The  
24 information transmission connection of the MCU **240** to the serial  
25 output devices would preferably consist of a serial peripheral  
26 interface **244** of an industry standard format. Finally, the serial  
27 command signals output by the MCU **240** would preferably be in  
28 standard serial format to permit the use of many different types of

1 output devices with the programmable electronic activity detector  
2 and command generator **200**, connection to which would be by a  
3 standard serial cable. Of course, as a virtually limitless number  
4 of types of output devices may be used with the presently described  
5 device, the command signals output by the MCU **240** may be modified  
6 to conform to the particular connected output device, as would be  
7 understood by one skilled in the art.

8       The command signals sent by the MCU **240** would preferably be in  
9 the format commonly used for command of printers, sound cards and  
10 the like to facilitate the use of the present invention with  
11 already existing hardware, and the programming and operation of  
12 such devices is well-known in the prior art. One important aspect  
13 of the present invention is that allowance has been made for the  
14 MCU **240** to include a network interface **260** which can be used to  
15 connect the programmable electronic activity detector and command  
16 generator **200** to a central control system (not shown). Through the  
17 network interface **260**, the central control system will be able to  
18 collect event information from the slot machine and also will be  
19 able to download command information to the programmable electronic  
20 activity detector and command generator **200** to activate connected  
21 output devices. A prime example of the use of this connection  
22 would be to immediately reward a game player upon hitting a certain  
23 combination on the reels, which was being monitored over the  
24 central control system. It is expected that the network system  
25 would be implemented as was previously discussed, although any  
26 appropriate network system could be used for the present invention.

27       One other possible use of the present invention is as a tie-in  
28 with state-run lotteries in which the network capabilities of the

1 present invention would be used to provide a wide-area "Powerball"  
2 type jackpot payoff on one particular combination being achieved.  
3 The specific nature of this implementation will be made apparent in  
4 future documentation, but this and other such examples serve to  
5 illustrate the virtually limitless possibilities for use of the  
6 present invention.

7 The second embodiment of the present invention is similar in  
8 function to the first embodiment, but incorporates additional  
9 features which further emphasize the unique aspects of the present  
10 invention. The bonus printing and dispensing method of the present  
11 invention includes the features of the previous embodiment but  
12 provides a bonus printing and dispensing device operatively  
13 connected to the MCU **240** and the command signals sent by the MCU  
14 **240** correspond to the occurrence of preselected event or series of  
15 events occurring on the electronic gaming device. The detection of  
16 a preselected event or series of events is performed by the event  
17 detector devices **204a-o** which signal the occurrence of the event by  
18 the transmission of an event occurrence notification signal  
19 corresponding to that event occurrence to the data capture segment  
20 **206** of the embodiment **200**. The event detector devices **204a-o** may  
21 be of various types as described previously, and may even be  
22 constructed as integral elements of the gaming device, so long as  
23 they function to detect event occurrences in the gaming device.  
24 The MCU **240** is programmed to recognize those preselected event  
25 occurrences, the programming being done by standard programming  
26 methods understood to those skilled in the art, and issue command  
27 signals to the connected bonusing system of the present invention,  
28 which, in the preferred embodiment, may include a bonus information

1 printing device, bonus item dispensing device and/or a connected  
2 electronic gaming device to output a bonus item or bonus  
3 information. It is important to note that the bonus printing or  
4 dispensing device is separate from the standard payout device of  
5 the electronic gaming device and is controlled separately by the  
6 MCU **240**. This means that the bonus payout is independent of the  
7 regular payout and can be modified without affecting the payout of  
8 the gaming device. This allows the casino or operator to modify  
9 the bonus payouts according to its wishes, without requiring  
10 additional inspection by a gaming commission or its agent.

11 A preferred embodiment of the bonusing system of the present  
12 invention would include a printing device operative to print bonus  
13 prize information which would be redeemable for a selected bonus  
14 prize. When a preselected event or series of events occurs on the  
15 gaming device, the printing device is commanded by the MCU **240** to  
16 dispense a printed ticket or voucher which can be redeemed for the  
17 selected bonus item or prize. Alternatively, the system would  
18 include a dispensing device which could be a vending device or the  
19 like which operative to output bonus items including coin, cash,  
20 bonus tickets, lottery tickets, scratch off tickets,  
21 complimentaries, promotional materials, and other such bonus  
22 awards.

23 Of course, the key and critical element of the above invention  
24 is that bonus payout is printed or dispensed by a separate device  
25 independent of the standard payout device of the gaming device and  
26 is tied to the occurrence of selected reel or outcome combinations  
27 on the electronic gaming device, and other occurrences on the  
28 gaming device do not directly influence the bonus payout. The

1 above-described invention is believed to provide a substantial  
2 improvement over the prior art, as the player of the gaming device  
3 will not only win standard payouts but will also win bonus prizes  
4 based on selected events or series of events occurring. Moreover,  
5 as the present invention provides a legitimate bonus versus a split  
6 payment of a predetermined amount, the player is more likely to  
7 continue playing the gaming device regardless of outcome, as they  
8 will still be receiving bonus prizes. Finally, as the present  
9 invention provides bonuses not connected with the payment  
10 calculations of the machine, the player may receive bonuses despite  
11 not hitting a standard payout combination.

12 It is to be understood that numerous additions, modifications,  
13 and substitutions may be made to the programmable electronic  
14 activity detector and command generator **200** and printing and  
15 dispensing bonusing system of the present invention which fall  
16 within the intended broad scope of the appended claims. For  
17 example, the microprocessors may potentially be combined into a  
18 single microprocessor chip programmed to perform the functions of  
19 each of the three chips. Furthermore, the specific object code  
20 used to program the microprocessors may be modified or changed in  
21 many ways so long as the function of each of the elements of the  
22 programmable electronic activity detector and command generator **200**  
23 and printing and dispensing bonusing system are able to function in  
24 the correct and efficient manner. Also, the detection devices of  
25 the present invention, described herein as optical interfaces, may  
26 be modified, changed or replaced entirely with detection devices  
27 which fulfill the intended function of identification of event  
28 occurrences and transfer of that information to the programmable



1 electronic activity detector and command generator **200**.  
2 Possibilities include optical readers which read the reel  
3 combinations produced by the machine and electromagnetic pulse  
4 detectors for detection of event occurrence signals, in addition to  
5 detectors directly connected to the gaming device or formed  
6 integrally therewith. Also, the exact designs and structures of  
7 the programmable electronic activity detector and command generator  
8 **200** and printing and dispensing bonusing system may be rearranged  
9 or modified as necessary to fit within the gaming device  
10 environment. Finally, the printing and dispensing bonusing system  
11 of the present invention may be modified or changed to issue  
12 different types of bonuses in connection with different series of  
13 occurrences on the gaming device, in addition to various types of  
14 printing and dispensing devices.

15       There have thus been shown and described a programmable  
16 electronic activity detector and command generator **200** and a  
17 printing and dispensing bonusing system which accomplish at least  
18 all of their stated objectives.  
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